

IN THE CLAIMS

1. (currently amended)      A nuclear reactor core comprising:

a plurality of fuel assemblies, each said fuel assembly comprising a fuel bundle, a lower tie plate coupled to a lower end of said fuel bundle, a fuel support coupled to said lower tie plate, and a main coolant flow channel comprising a coolant inlet, said main coolant flow channel extending from said coolant inlet through said fuel support and said lower tie plate into a main body of said fuel bundle; and

a coolant flowing through said plurality of fuel assemblies;

said plurality of fuel assemblies arranged into at least three regions within said core, each said region includes a portion of said plurality of fuel assemblies, each portion comprising more than one of said plurality of fuel assemblies;

each said main coolant flow channel further comprising a means of controlling a flow of coolant through said main coolant flow channel so that the flow of coolant through said main coolant flow channels of said fuel assemblies located in a particular region are substantially the same, and that the coolant flow through said fuel assemblies in each said region is different from the coolant flow through said fuel assemblies in each other region,

said means of controlling said flow of coolant through said main coolant flow channel comprising a plurality of orifices and a plurality of restriction devices, each said inlet of each said main coolant flow channel includes one orifice located therein, each said restriction device detachably coupled to a lower end of said lower tie plate and comprising a plurality of openings extending through said restriction device, each said main coolant flow channel having its own means of controlling coolant flow that is separate from means of controlling coolant flow for each other main coolant flow channel.

2. (canceled)

3. (previously presented) A reactor core in accordance with Claim 1 wherein said orifices of said fuel assemblies located in a particular region are sized so that the flow of coolant through said main coolant flow channel of each said fuel assembly located in a particular region are is substantially the same.

4. (previously presented) A reactor core in accordance with Claim 3 wherein said orifices of said fuel assemblies are sized so that the coolant flow through said fuel assemblies in each said region is different from the coolant flow through said fuel assemblies in each other region.

5. (original) A reactor core in accordance with Claim 1 wherein said core comprises a substantially circular cross section, and said fuel assemblies are arranged in an edge region located circumferentially around an outer edge of said core, a middle region located adjacent said edge region, and a central region located in the center of said core, said middle region located between said edge region and said central region.

6. (original) A reactor core in accordance with Claim 5 wherein the flow of coolant through said fuel assemblies located in said edge region is less than the flow of coolant through said fuel assemblies located in said middle region.

7. (original) A reactor core in accordance with Claim 6 wherein the flow of coolant through said fuel assemblies located in said middle region is less than the flow of coolant through said fuel assemblies located in said central region.

8. (canceled)

9. (previously presented) A reactor core in accordance with Claim 1 wherein said flow restriction devices of said fuel assemblies located in a particular region are sized so that the flow of coolant through said main coolant flow channel of each said fuel assembly located in a particular region is substantially the same.

10. (original) A reactor core in accordance with Claim 9 wherein said flow restriction devices of said fuel assemblies are sized so that the coolant flow through said fuel

assemblies in each said region is different from the coolant flow through said fuel assemblies in each other region.

11. - 19. (cancelled)

20. (previously presented) A reactor core in accordance with Claim 5 wherein said diameter of said orifices located in said edge region is less than said diameter of said orifices located in said middle region.

21. (previously presented) A reactor core in accordance with Claim 20 wherein said diameter of said orifices located in said middle region is less than said diameter of said orifices located in said central region.

22. (original) A reactor core in accordance with Claim 21 wherein said flow restriction devices of said fuel assemblies located in a particular region are sized so that the flow of coolant through said main coolant flow channels of said fuel assemblies located in a particular region are substantially the same.

23.-27. (cancelled)